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ABSTRACT

The Kaufman Brief Intelligence Test (K-BIT) was used as a screening instrument to predict Wechsler Intelligence Scale for Children-Third Edition (WISC-III) scores of 94 students referred for psychoeducational evaluations. Although the correlation coefficient between the K-BIT IQ Composite and the WISC-III Full Scale IQ was 0.771 for the entire sample, the correlation coefficients and effectiveness of the K-BIT as a screening instrument were found to differ depending on the population. For a potentially learning disabled sample, the K-BIT Composite IQ correlated with the WISC-III Full Scale IQ at 0.51. For a potentially intellectually gifted sample, the K-BIT correlated with the WISC-III at 0.34. The mean K-BIT Composite IQ for the entire referred population was found to be 6.926 points less than the average WISC-III IQ. These findings do not support the use of K-BIT as a screening instrument when the WISC-III is used as the criterion measure of intellectual ability. (Contains six tables.) (Author/SLD)

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Concurrent Validity of K-BIT Using the WISC-III as the Criterion

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Abstract

The Kaufman Brief Intelligence Test was used as a screening instrument to predict Wechsler Intelligence Scale for Children-Third Edition scores of 94 referred students. Although the correlation coefficient between the K-BIT IQ Composite and the WISC-III Full Scale IQ was .771 for the entire sample, the correlation coefficients and effectiveness of the K-BIT as a screening instrument were found to differ depending upon the population. For a potentially learning disabled sample, the K-BIT Composite IQ correlated with the WISC-III Full Scale IQ (.51). For a potentially intellectually gifted sample, the K-BIT correlated with the WISC-III (.34). The mean K-BIT Composite IQ for the entire referred population was found to be 6.926 points less than the average WISC-III IQ. The present findings do not support the use of K-BIT as a screening instrument when the WISC-III is used as the criterion measure of intellectual ability.

Introduction

According to the authors of the Kaufman Brief Intelligence Test (K-BIT; Kaufman & Kaufman, 1990) the K-BIT was developed as screening. The authors of the K-BIT (Kaufman & Kaufman, 1990) reported correlation studies with normal children ages 6 years to 15 years and adults ages 16 years to 47 years, which support the test's concurrent validity with the Wechsler Intelligence Scale for Children-Revised (WISC-R; Wechsler, 1974) and the Wechsler Adult Intelligence Scale-Revised (WAIS-R; Wechsler, 1981). According to theK-BIT manual (Kaufman & Kaufman, 1990), the K-BIT IQ Composite standard score correlated (.80) with the WISC-R Full Scale IQ and (.75) with the WAIS-R Full Scale score. The K-BIT manual reported that the K-BIT IQ Composite standard score has been found to be on the average 6 points less than the WISC-R Full Scale IQ. The Kaufmans have explained that the difference in overall standard scores occurred because of the outdated norms of the WISC-R (Kaufman & Kaufman, 1990). In a recent study by P.N. Prewett (1995) with 50 students referred for academic difficulties, the K-BIT IQ Composite was found to correlate (.78) with the WISC-III Full Scale IQ. Prewett (1995) reported K-BIT IQ Composite scores to be 4.8 points higher than the WISC-III Full Scale IQ.

Methods

Subjects

The sample consisted of 94 referred students whose ages ranged from 6 years to 14 years. The mean age of the sample was 9 years 2 months with a standard deviation of 2.16. The sample consisted of 43 females and 51 males. The sample consisted of 70 white students, 16 African-American students, 4 Hispanic students, and 2 Asian students. The students were referred for psychoeducational evaluations to identify learning problems or to determine eligibility for gifted certification. The sample consisted of 44 students referred for learning problems and 50 students referred for determination of intellectual giftedness.

Material

The Wechsler Intelligence Scale for Children-Third Edition, the Woodcock-Johnson Tests of Achievement, and the Kaufman Brief Intelligence Test were administered to each

of the subjects. The K-BIT is an individually administered brief test for individuals ages 4 years to 90 years, which measures crystallized and fluid intelligence (Horn & Cattell, 1966). The K-BIT consists of two subtests, the Vocabulary and Matrices. The K-BIT manual reports test-retest reliability coefficients greater than .90 for each age group of the sample and an internal consistency coefficient of .92 for the total population.

Procedures

The K-BIT was administered by trained personnel according to the manual. The WISC-III was administered by licensed school psychologist following standard procedures.

Results

The standard scores from the WISC-III and K-BIT were analyzed to determine the range, central tendency, frequency, and standard deviation of the standard scores of the entire sample population and for the population divided into two groups: the intellectually gifted and learning disabled. Statistics for the entire sample are presented in Table 1 and 2. Overall the WISC-III Full Scale was nearly 7 points lower than the K-BIT Composite, but the scores correlated .771.

Analysis of the referred intellectually gifted population found the average WISC-III Full Scale IQ of 125 (*SD* = 11) was found to be 11 points higher than the average K-BIT score of 114 (*SD* = 12). The WISC-III Full Scale correlated .344 (*p* = .0145) with the K-BIT IQ Composite. The K-BIT accurately predicted giftedness for 39% of the referred children.

Analysis of the referred learning disabled special education population found the average IQ Composite standard score of 90 (*SD* = 11) was found to be 2 points less than the average WISC-III Full Scale IQ of 92 (*SD* = 11). The WISC-III Full Scale IQ correlated .512 (*p* = .0004) with the K-BIT IQ Composite score. The K-BIT successfully predicted eligibility decisions for 66% of the students with potential learning disabilities.

Conclusion

It was hypothesized that the K-BIT would significantly correlate with the WISC-III. It was further hypothesized that the K-BIT would be an effective screening instrument for educational assessments.

A consistent theme which emerged throughout the analysis of the data was that correlation coefficients and the effectiveness of the K-BIT as a screening instrument for the WISC-III differed depending upon the population. The present study found that the K-BIT correlated significantly with the Wechsler test, of the entire sample was considered together. The K-BIT was potentially useful for assisting with the identification of learning disabled students (66% accuracy). However it was less useful for the gifted sample (39%). Prewett (1995) reported that the K-BIT and WISC-III correlated highly for referred students however, he suggested that the K-BIT be perceived only as a "rough estimate" of WISC-III performance and should not eliminate the use of a comprehensive measure.

Further research with the WISC-III and K-BIT is necessary. The small number of subjects, the lack of ethnic diversity, and the restricted range within the separate sample suggest that caution should be used in interpreting the results. The findings of this study should be viewed as tentative and in need of replication with other samples of special education and regular education students.

Table 1

Entire Sample Population: Range, Means, and Standard Deviations

	Range	Means	SD
K-BIT			
Vocabulary	51-149	102.98	17.27
Matrices	70-143	102.16	15.98
IQ Composite	62-143	102.88	16.52
WISC-III			
Vocabulary subtest	70-140	106.07	19.49
Picture Arrangement subtest	70-140	108.85	18.20
Verbal IQ	69-150	108.77	19.50
Performance IQ	69-146	110.06	19.74
Full Scale IQ	70-143	109.81	19.92

Note. N = 94.

Table 2

Correlations between the K-BIT Standard Scores and the WISC-III Scales Scores for the Entire Sample Population (N = 94)

	K-BIT		
WISC-III	IQ Composite	Vocabulary	Matrices
Verbal IQ	.744	.759	.541
Performance IQ	.695	.660	.572
Full Scale IQ	.771	.754	.607
Vocabulary subtest		.739	
Picture Arrangement subtest			.498

Note. p = .0001.

Table 3

Intellectually Gifted Sample: Range, Means, Standard Deviations, and Correlations

		Range	Means	SD
WISC-III				
	Verbal IQ	95-150	123.42	12.33
	Performance IQ	94-146	124.48	12.45
	Full Scale IQ	97-143	125.38	10.64
K-BIT				
	Vocabulary	89-149	114.36	12.29
	Matrices	84-143	111.04	12.26
	IQ Composite	90-143	114.18	11.54

NOTE: $n = 50$

Table 4

Intellectually Gifted Sample: Correlations

		K-BIT	
	IQ Composite	Vocabulary	Matrices
WISC-III			
Vocabulary	.278	.433	.-049
	$p = .05$	$p = .01$	$p = .74$
Verbal IQ	.291	.343	.075
	$p = .04$	$p = .01$	$p = .60$
Performance IQ	.185	.165	.125
	$p = .20$	$p = .25$	$p = .38$
Full Scale IQ	.344	.324	.210
	$p = .01$	$p = .02$	$p = .14$

Table 5

Learning Disabled Sample: Range, Means, Standard Deviations, and Correlations

		Range	Means	SD
WISC-III				
	Vocabulary	70-124	90.10	9.49
	Verbal IQ	69-115	92.11	10.76
	Performance IQ	69-116	93.68	12.25
	Full Scale IQ	70-108	92.11	11.25
K-BIT				
	Vocabulary	51-117	90.07	12.31
	Matrices	70-127	92.07	12.50
	IQ Composite	62.114	90.05	11.01

NOTE: $n = 44$

Table 6

Learning Disabled Gifted Sample: Correlations

		K-BIT	
	IQ Composite	Vocabulary	Matrices
WISC-III			
Vocabulary	.331	.450	.080
	$p = .0281$	$p = .0022$	$p = .6063$
Verbal IQ	.506	.604	.203
	$p = .0005$	$p = .0001$	$p = .1866$
Performance IQ	.410	.339	.317
	$p = .0056$	$p = .0246$	$p = .0359$
Full Scale IQ	.512	.524	.292
	$p = .0004$	$p = .0003$	$p = .0544$